CLAIMS

1. A signal processing system having at least two independent processing channels, a plurality of optical fibres with their one ends oriented to receive electromagnetic radiation, and couplers interconnecting the other ends of the optical fibres in parallel such that electromagnetic radiation transmitted by the optical fibres will be coupled together and then directed into each of the independent processing channels.

2. A signal processing system, according to Claim 1, in which at least one of the independent processing channels includes a processing board with an output to a signal detector.

3. A signal processing system, according to Claim 2, in which at least one of the processing boards includes electrical and/or optical signal processing components.

4. A signal processing system, according to any preceding claim, in which at least one of the independent processing channels is arranged to transmit the electromagnetic radiation in sequence to a signal detector input.

5. A signal processing system, according to Claim 4, in which another independent processing channel is arranged to transmit the electronic radiation in sequence to another signal detector input, and the independent processing channels incorporate different optical delays to minimise any range/position ambiguity.

6. A signal processing system, according to Claim 1, in which one of the independent processing channels is arranged to transmit electromagnetic radiation in sequence to a signal detector unit, and another independent processing channel is arranged to transmit the electromagnetic radiation to a processing board configured to assess the range and depth of a target.

7. A signal processing system, according to any preceding claim, in which two independent processing channels contain different signal detectors.

8. A signal processing system, as in any preceding claim in which at least one of the independent processing channels is arranged to feed signals into at least one other independent processing channel.

9. A signal processing system substantially as described herein with reference to the accompanying drawings.